FIG. 1
PRIOR ART

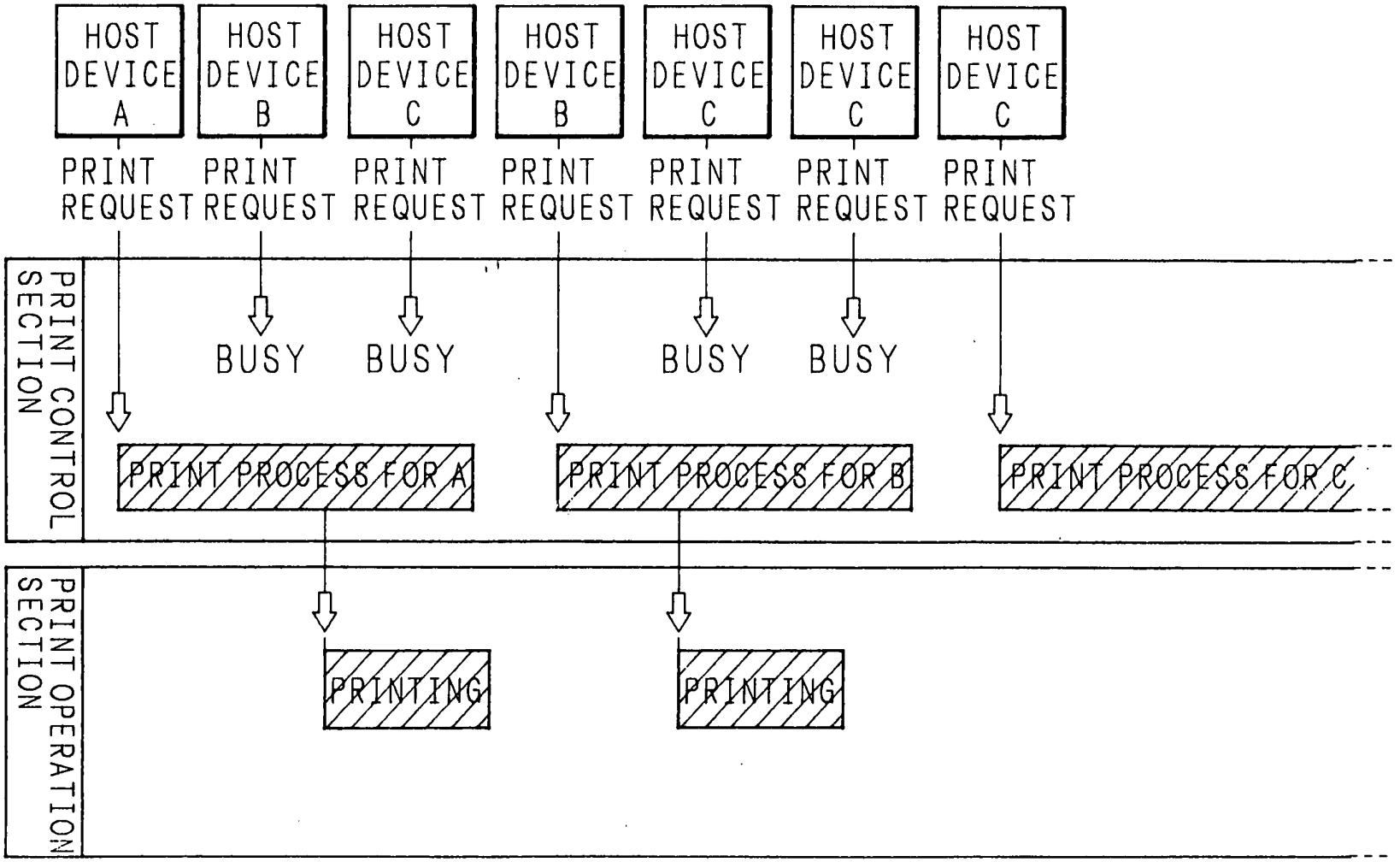


FIG. 2
PRIOR ART

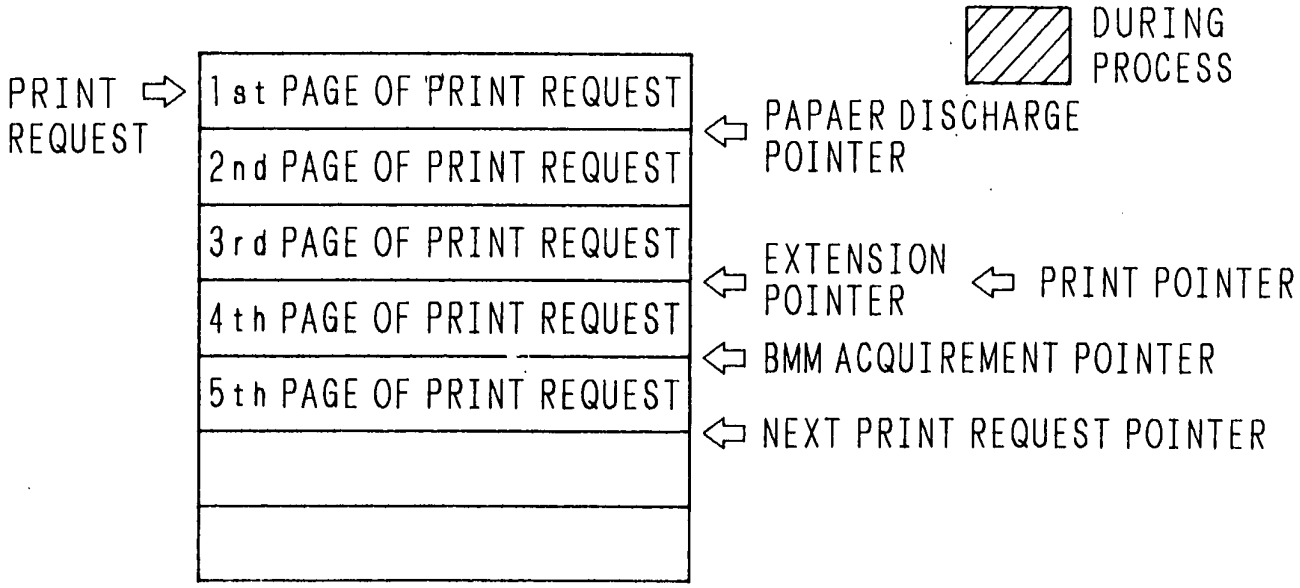


FIG. 3

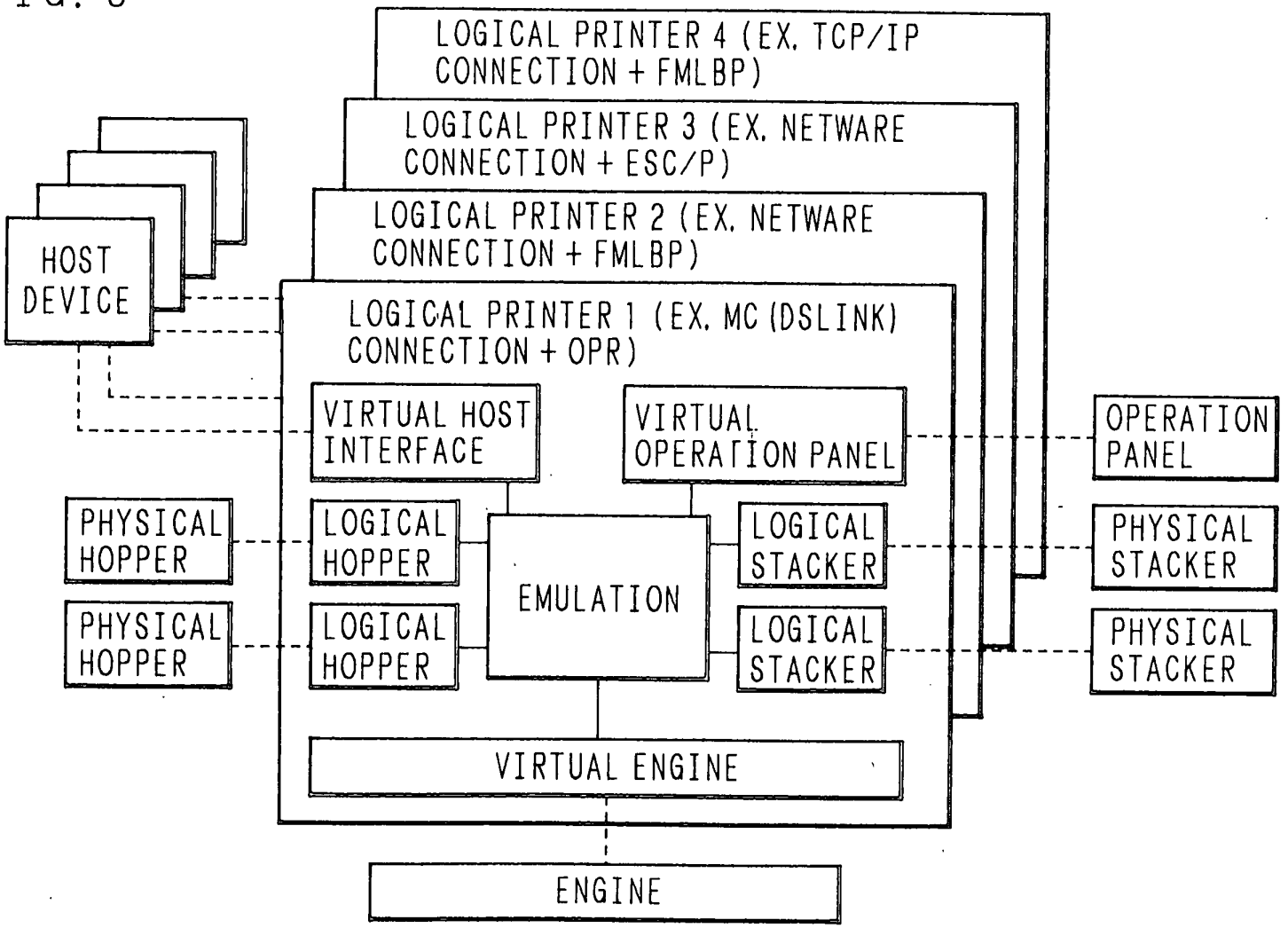

LOGICAL PRINTER 4 (EX. TCP/IP CONNECTION + FMLBP)
LOGICAL PRINTER 3 (EX. NETWARE CONNECTION + ESC/P)
LOGICAL PRINTER 2 (EX. NETWARE CONNECTION + FMLBP)
LOGICAL PRINTER 1 (EX. MC (DSLINK) CONNECTION + OPR)
HOST DEVICE
VIRTUAL HOST INTERFACE
VIRTUAL OPERATION PANEL
OPERATION PANEL
PHYSICAL HOPPER
PHYSICAL HOPPER
LOGICAL HOPPER
LOGICAL HOPPER
EMULATION
LOGICAL STACKER
LOGICAL STACKER
PHYSICAL STACKER
PHYSICAL STACKER
VIRTUAL ENGINE
ENGINE

FIG. 4

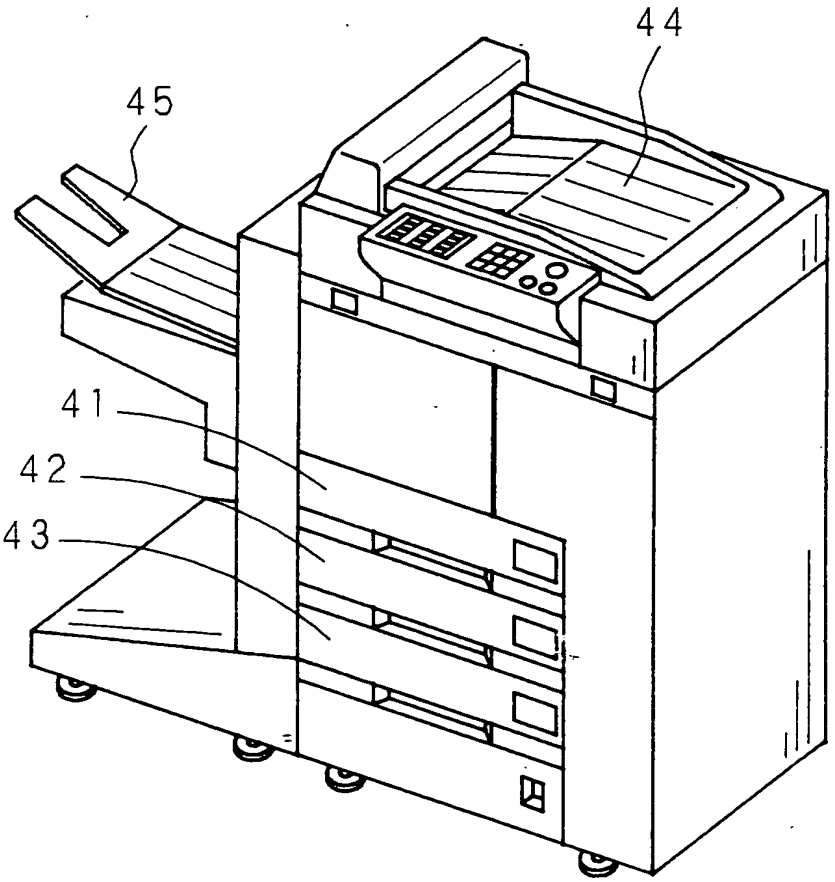


FIG. 5

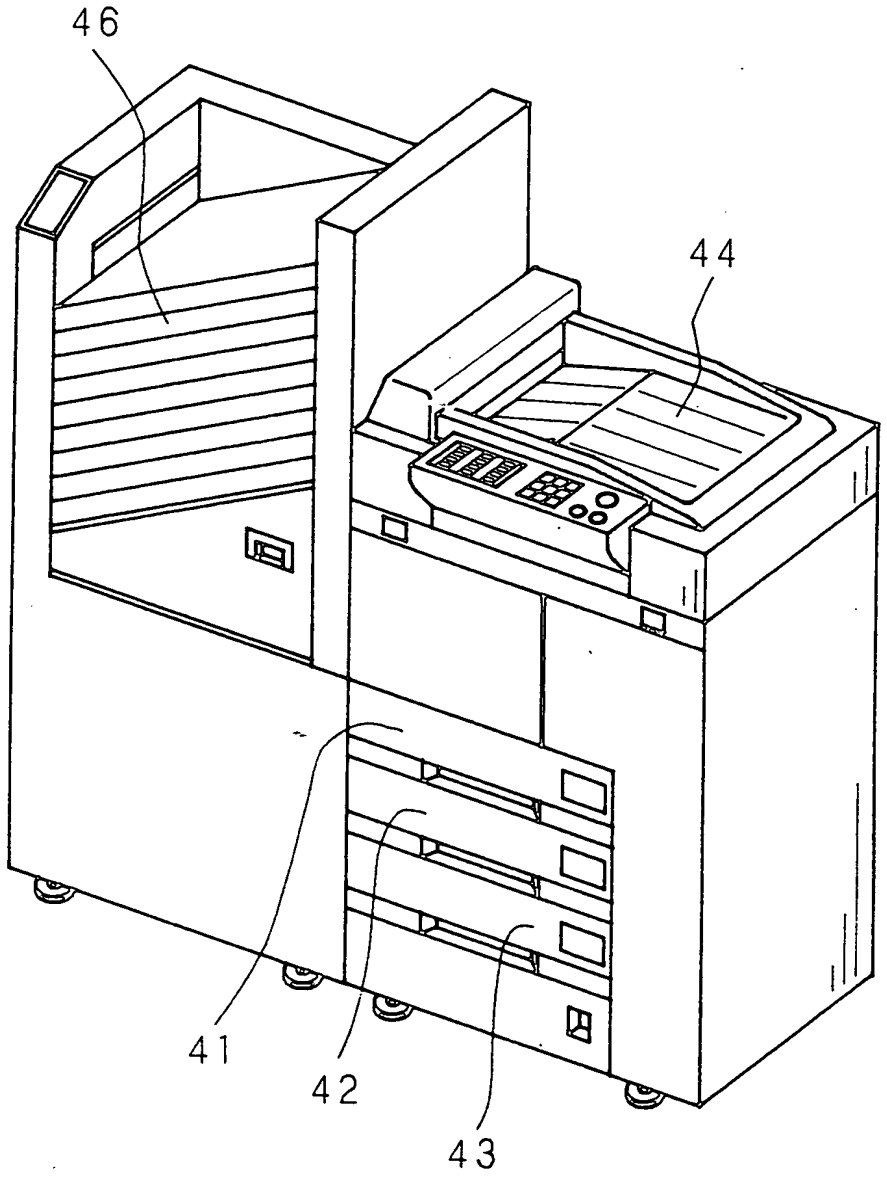
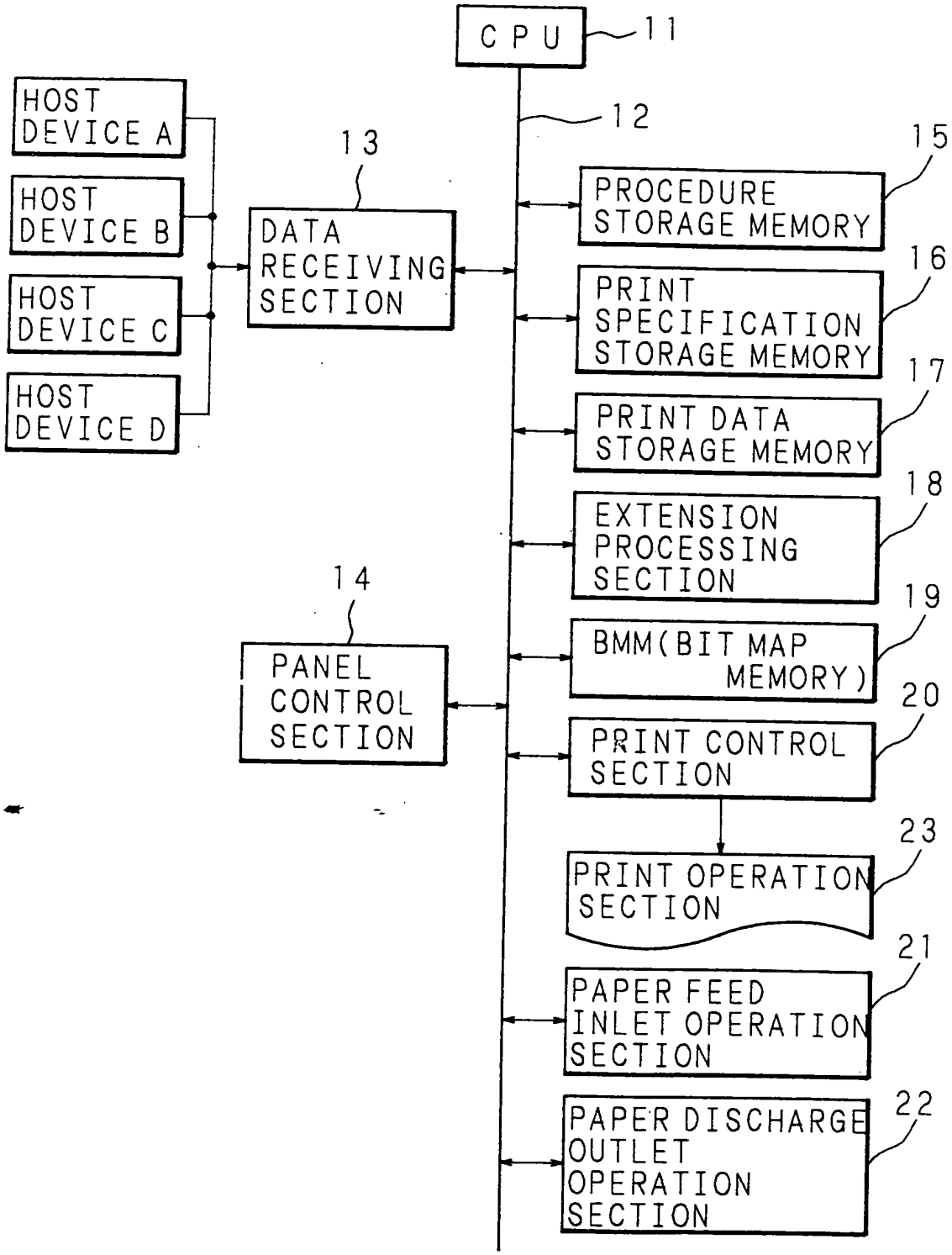


FIG. 6



0054805A1 | 0054805 | 0054805A1

FIG. 7

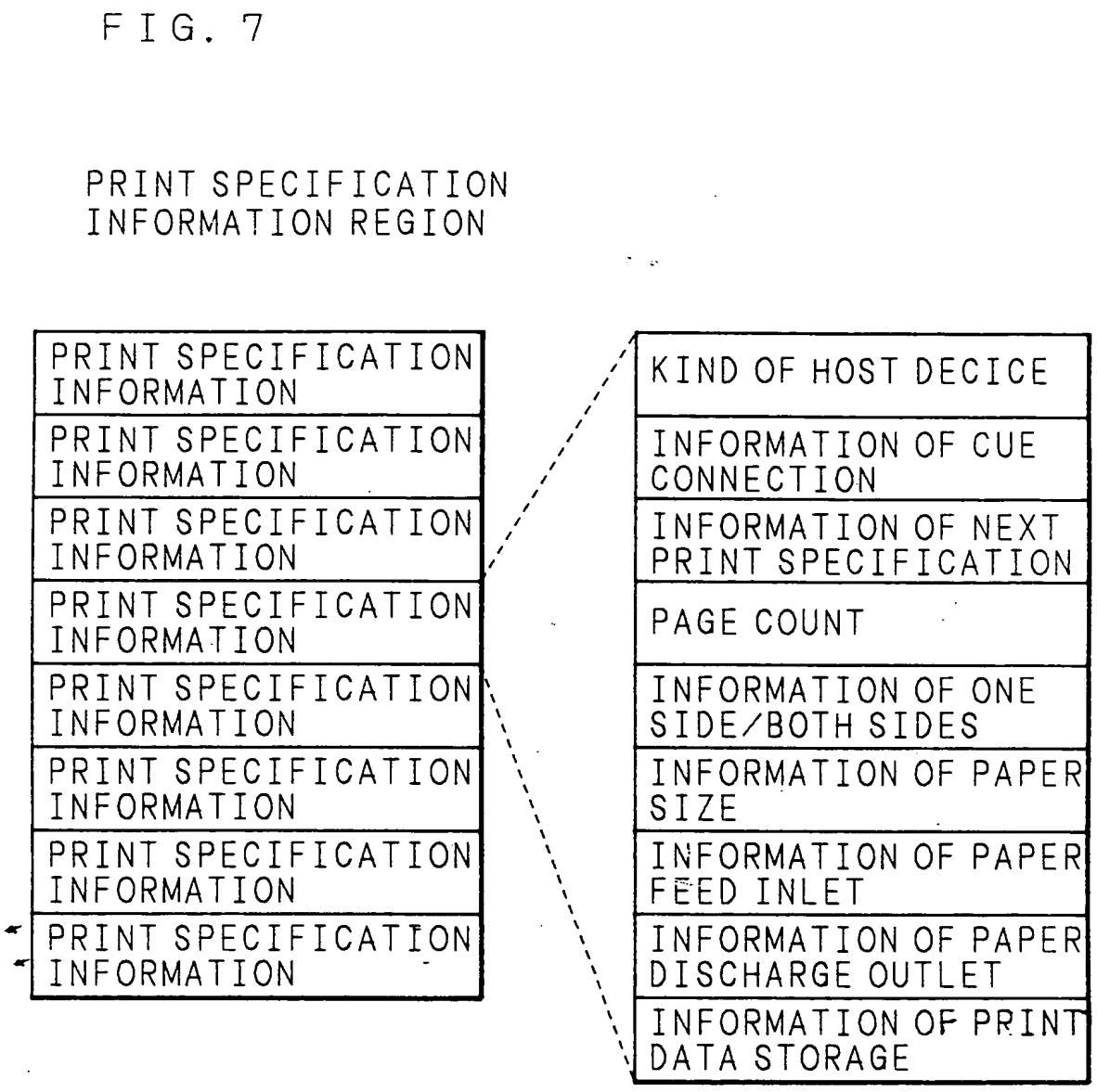

PRINT SPECIFICATION INFORMATION REGION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
PRINT SPECIFICATION INFORMATION
KIND OF HOST DECICE
INFORMATION OF CUE CONNECTION
INFORMATION OF NEXT PRINT SPECIFICATION
PAGE COUNT
INFORMATION OF ONE SIDE/BOTH SIDES
INFORMATION OF PAPER SIZE
INFORMATION OF PAPER FEED INLET
INFORMATION OF PAPER DISCHARGE OUTLET
INFORMATION OF PRINT DATA STORAGE

FIG. 8

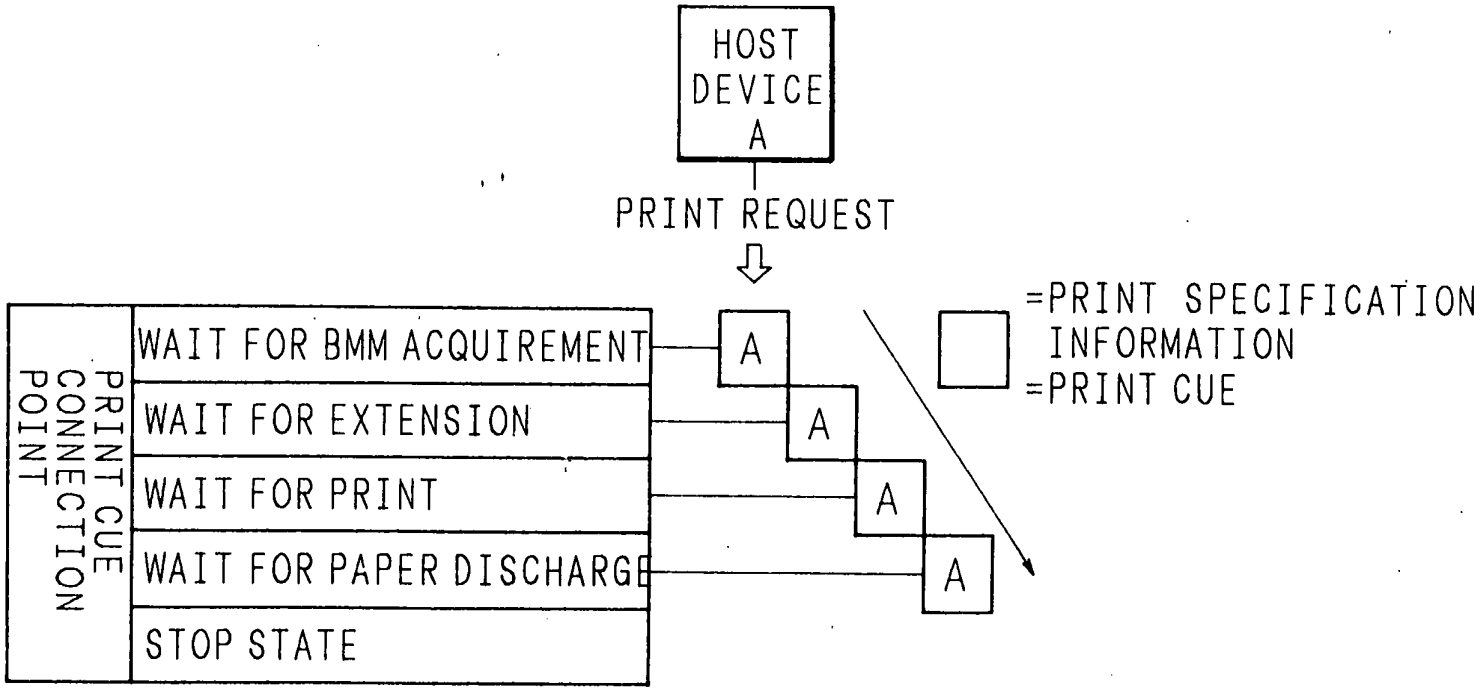

HOST DEVICE A
PRINT REQUEST
=PRINT SPECIFICATION INFORMATION
=PRINT CUE
PRINT CUE CONNECTION POINT
WAIT FOR BMM ACQUIREMENT
WAIT FOR EXTENSION
WAIT FOR PRINT
WAIT FOR PAPER DISCHARGE
STOP STATE
A
A
A
A

FIG. 9

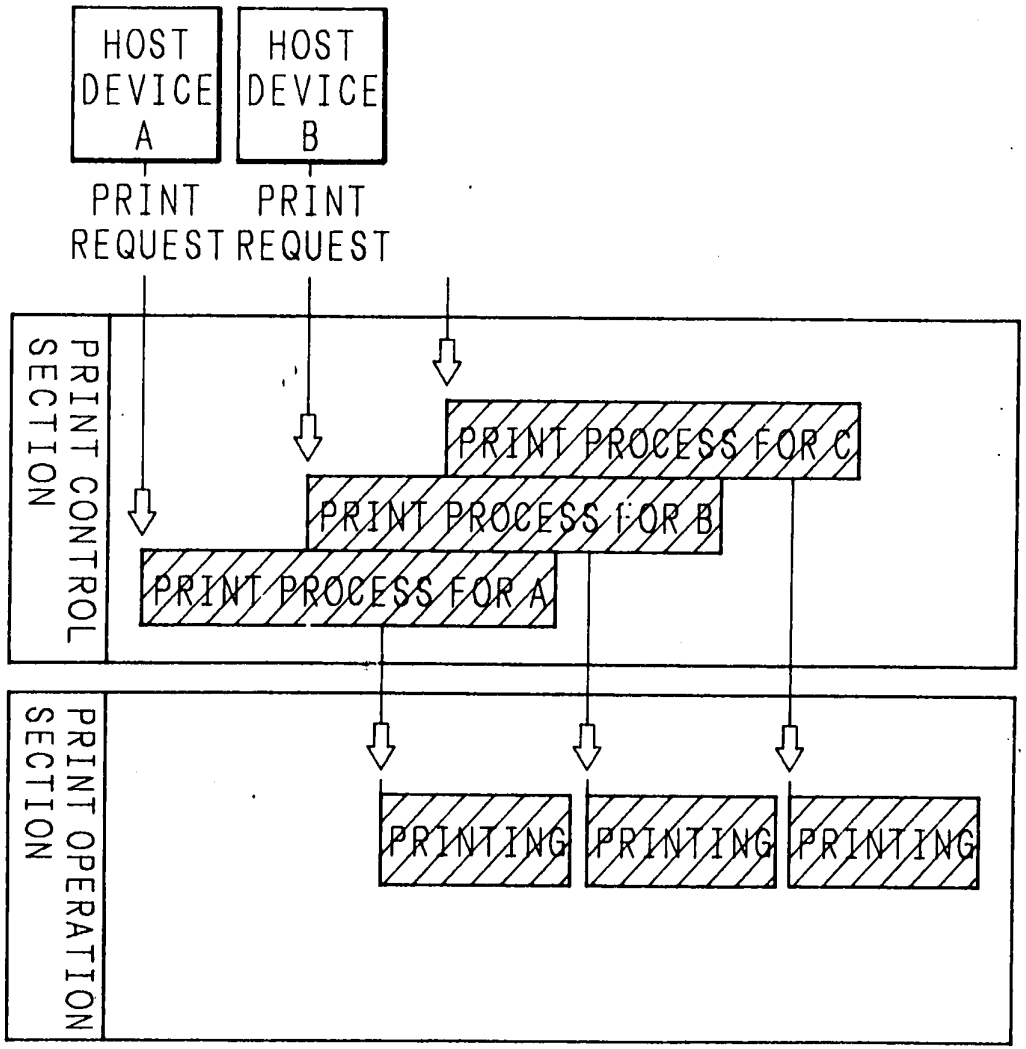

HOST DEVICE A
HOST DEVICE B
PRINT REQUEST
PRINT REQUEST
PRINT CONTROL SECTION
PRINT PROCESS FOR C
PRINT PROCESS FOR B
PRINT PROCESS FOR A
PRINT OPERATION SECTION
PRINTING
PRINTING
PRINTING

FIG. 10A

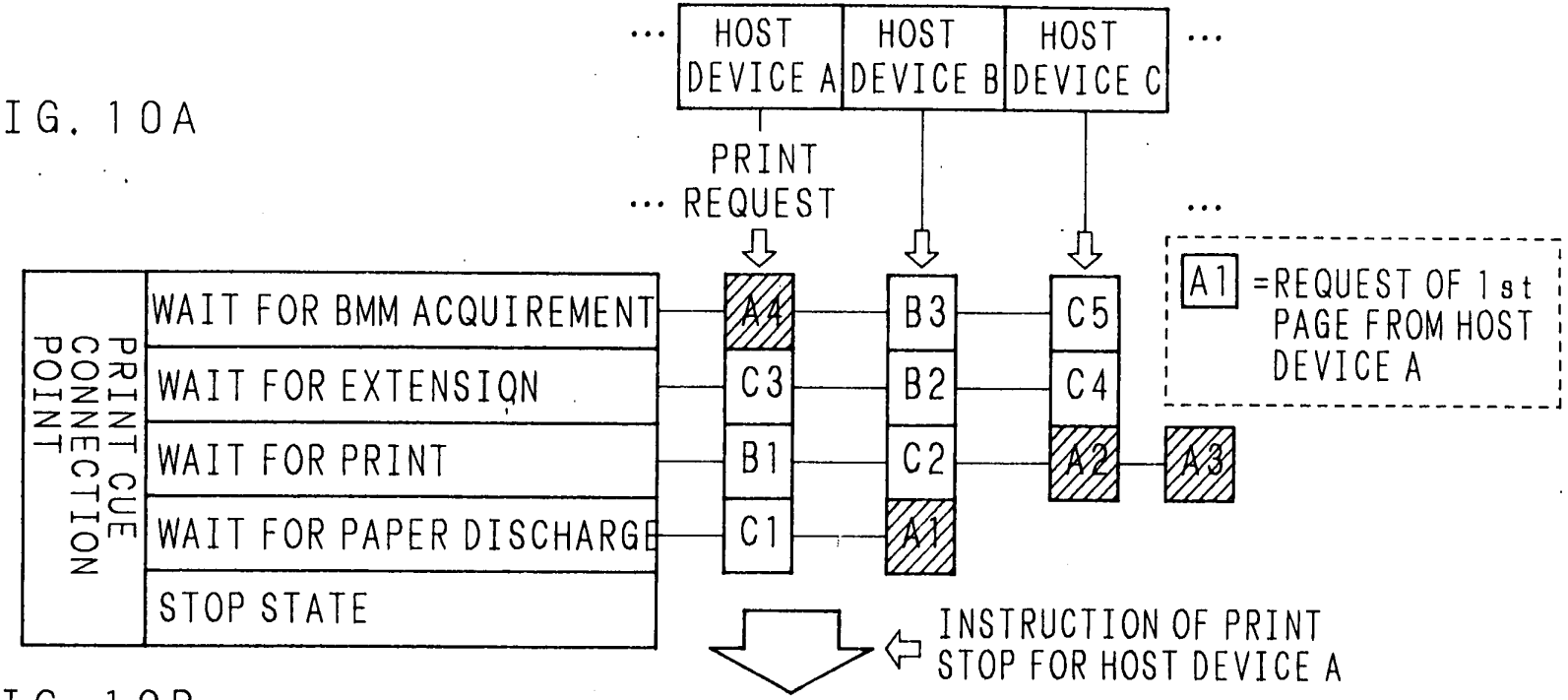


FIG. 10B

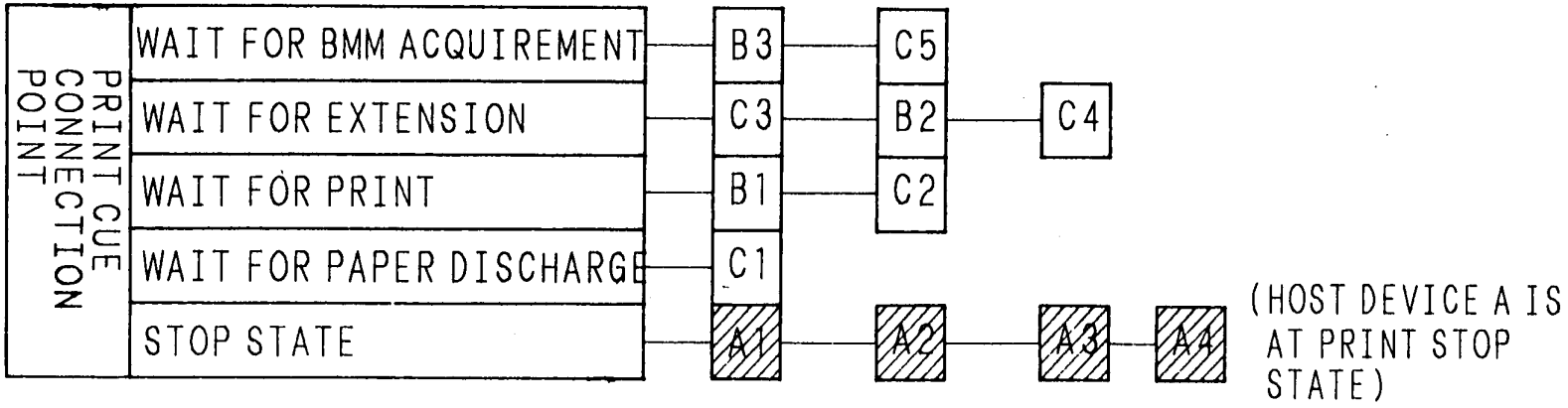


FIG. 10C

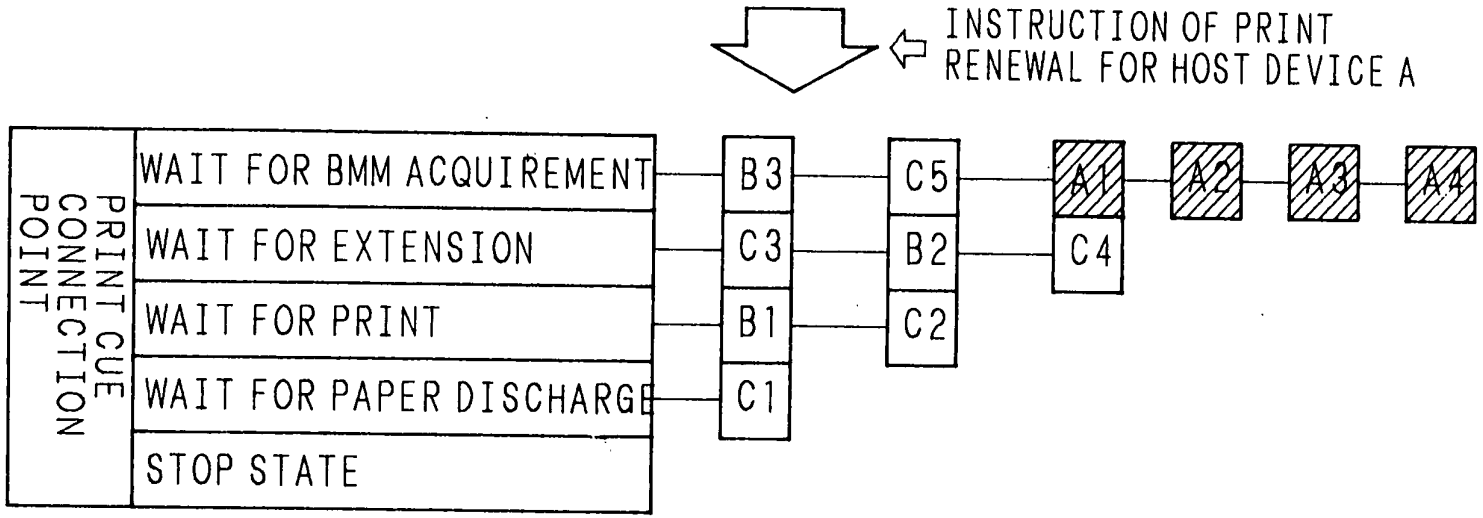

INSTRUCTION OF PRINT RENEWAL FOR HOST DEVICE A
PRINT CUE CONNECTION POINT
WAIT FOR BMM ACQUIREMENT
WAIT FOR EXTENSION
WAIT FOR PRINT
WAIT FOR PAPER DISCHARGE
STOP STATE
B3
C3
B1
C1
C5
B2
C2
A1
C4
A2
A3
A4

FIG. 11A

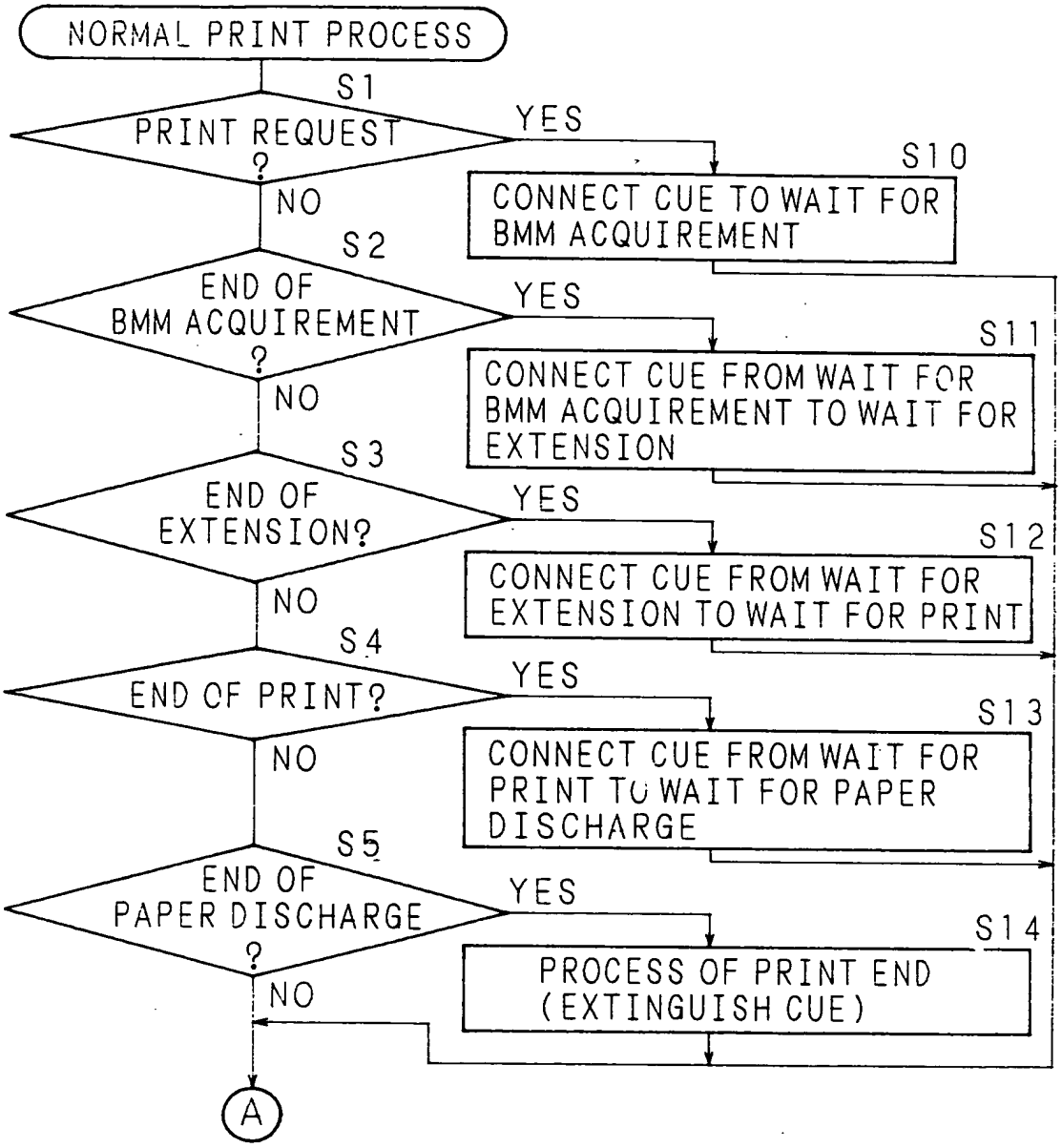

NORMAL PRINT PROCESS
S1
PRINT REQUEST ?
YES
S10
CONNECT CUE TO WAIT FOR BMM ACQUIREMENT
NO
S2
END OF BMM ACQUIREMENT ?
YES
S11
CONNECT CUE FROM WAIT FOR BMM ACQUIREMENT TO WAIT FOR EXTENSION
NO
S3
END OF EXTENSION?
YES
S12
CONNECT CUE FROM WAIT FOR EXTENSION TO WAIT FOR PRINT
NO
S4
END OF PRINT?
YES
S13
CONNECT CUE FROM WAIT FOR PRINT TO WAIT FOR PAPER DISCHARGE
NO
S5
END OF PAPER DISCHARGE ?
YES
S14
PROCESS OF PRINT END (EXTINGUISH CUE)
NO
A

FIG. 11B

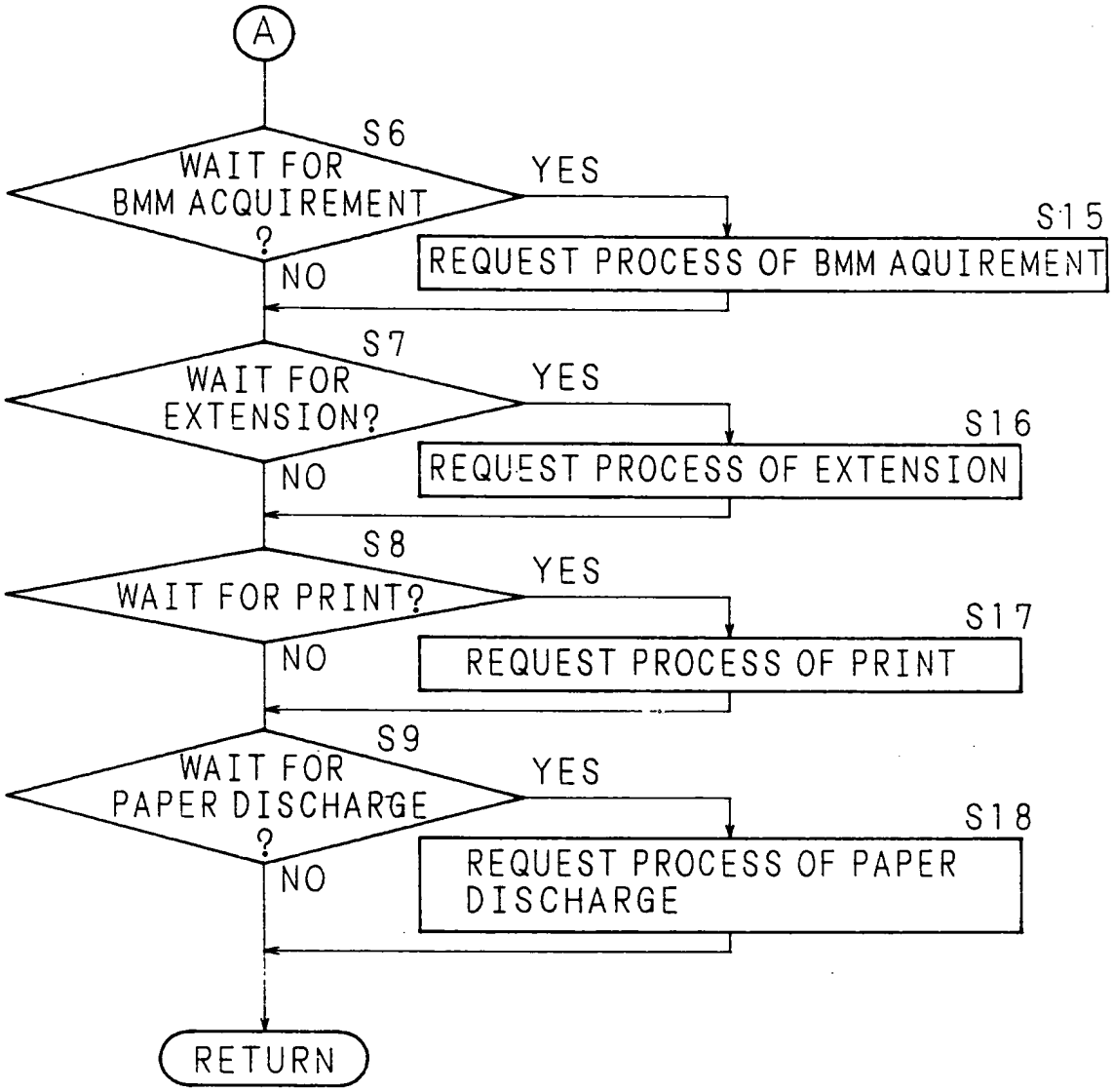

A
S6
WAIT FOR BMM ACQUIREMENT ?
YES
S15
REQUEST PROCESS OF BMM AQUIREMENT
NO
S7
WAIT FOR EXTENSION?
YES
S16
REQUEST PROCESS OF EXTENSION
NO
S8
WAIT FOR PRINT?
YES
S17
REQUEST PROCESS OF PRINT
NO
S9
WAIT FOR PAPER DISCHARGE ?
YES
S18
REQUEST PROCESS OF PAPER DISCHARGE
NO
RETURN

FIG. 12

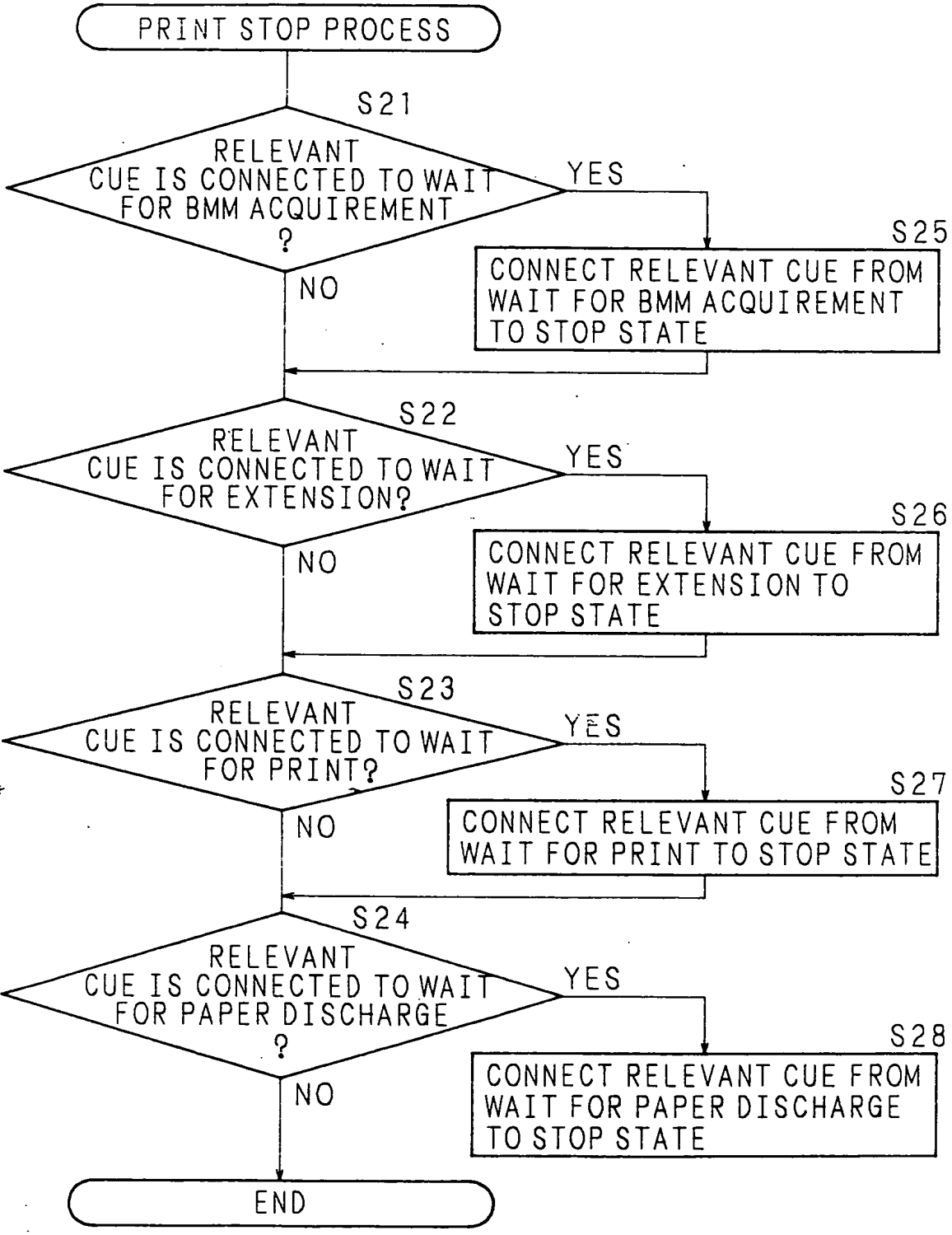

PRINT STOP PROCESS
S21
RELEVANT CUE IS CONNECTED TO WAIT FOR BMM ACQUIREMENT ?
YES
NO
S25
CONNECT RELEVANT CUE FROM WAIT FOR BMM ACQUIREMENT TO STOP STATE
S22
RELEVANT CUE IS CONNECTED TO WAIT FOR EXTENSION?
YES
NO
S26
CONNECT RELEVANT CUE FROM WAIT FOR EXTENSION TO STOP STATE
S23
RELEVANT CUE IS CONNECTED TO WAIT FOR PRINT?
YES
NO
S27
CONNECT RELEVANT CUE FROM WAIT FOR PRINT TO STOP STATE
S24
RELEVANT CUE IS CONNECTED TO WAIT FOR PAPER DISCHARGE ?
YES
NO
S28
CONNECT RELEVANT CUE FROM WAIT FOR PAPER DISCHARGE TO STOP STATE
END

FIG. 13

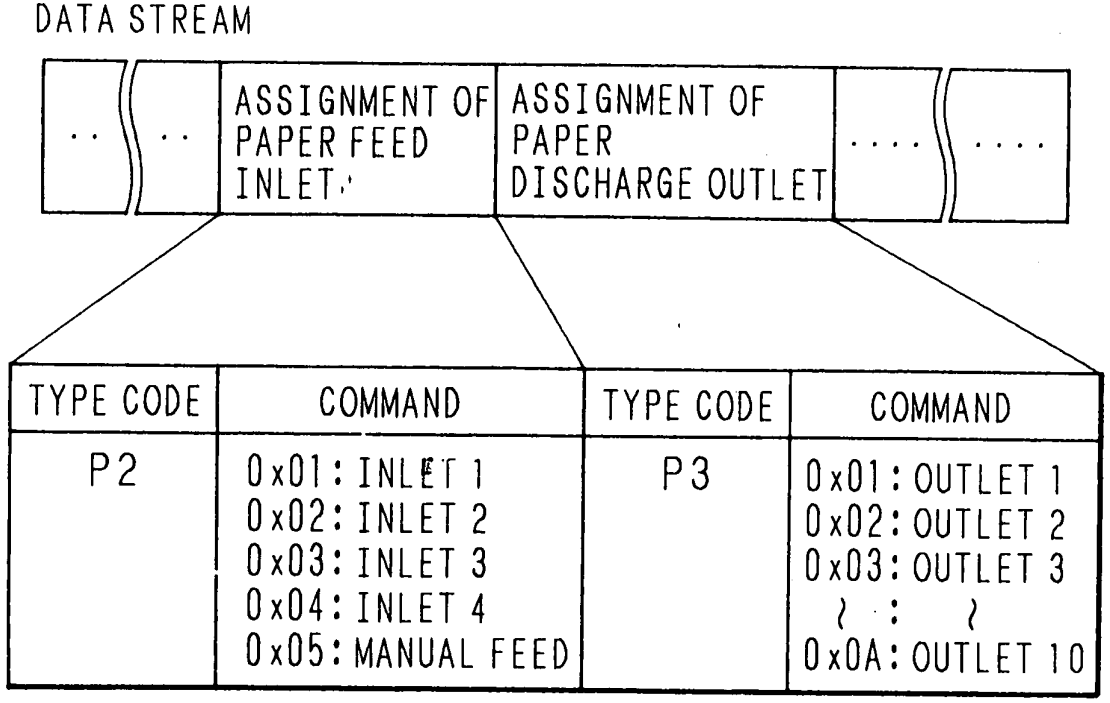
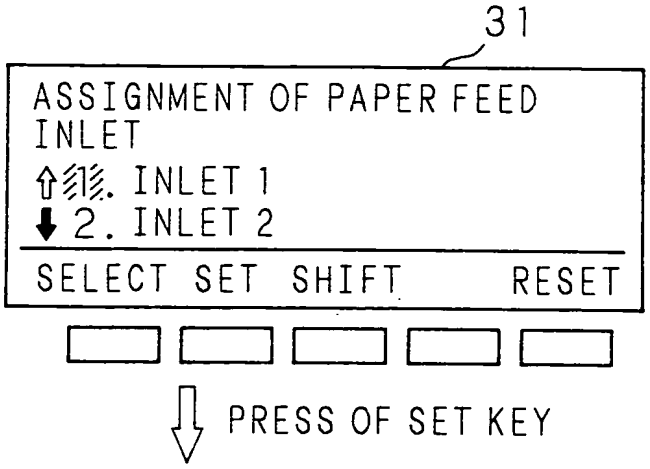

DATA STREAM
..
..
ASSIGNMENT OF PAPER FEED INLET
ASSIGNMENT OF PAPER DISCHARGE OUTLET
....
....
TYPE CODE
COMMAND
P2
0x01: INLET 1
0x02: INLET 2
0x03: INLET 3
0x04: INLET 4
0x05: MANUAL FEED
TYPE CODE
COMMAND
P3
0x01: OUTLET 1
0x02: OUTLET 2
0x03: OUTLET 3
0x0A: OUTLET 10

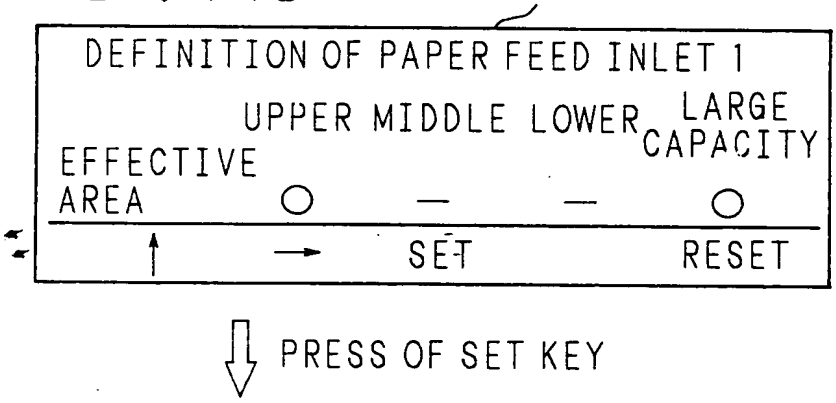
FIG. 14A



3 : INLET 3
4 : INLET 4
5 : MANUAL FEED

(KEY OPERATION)
SELECTION KEY
SELECTING PAPER FEED INLET TO BE DEFINED
SET KEY
CHANGE TO EACH PAPER FEED INLET DEFINITION SCREEN

FIG. 14B



○ : DEFINITION
— : NO DEFINITION

(KEY OPERATION)
↑ : UP KEY CHANGING ○/—
→ : RIGHT KEY MOVING CURSOR TO NEXT PAPER FEED INLET

FIG. 14C

CONTROL TABLE

LOGICAL PRITER 1
DEFINITION OF PAPER FEED INLET

	UPPER	MIDDLE	LOWER	LARGE CAPACITY
INLET 1 :	○	—	—	○
INLET 2 :	—	○	—	—
INLET 3 :	—	—	○	—
INLET 4 :	—	—	○	○
MANUAL FEED :	○	○	—	—

≈ ≈

LOGICAL PRINTER n
DEFINITION OF PAPER FEED INLET

	UPPER	MIDDLE	LOWER	LARGE CAPACITY
INLET 1 :	○	—	—	—

○ : DEFINITION
— : NO DEFINITION

FIG. 15

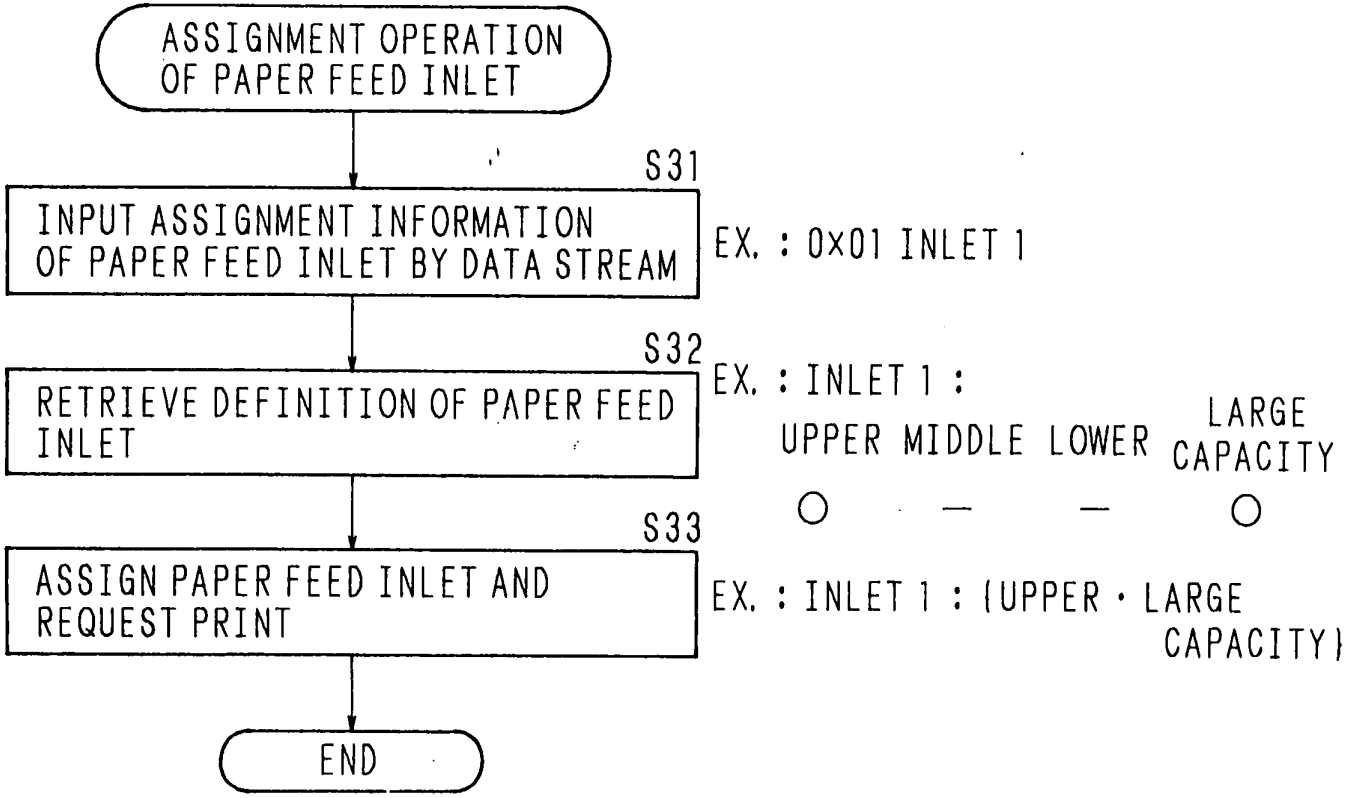
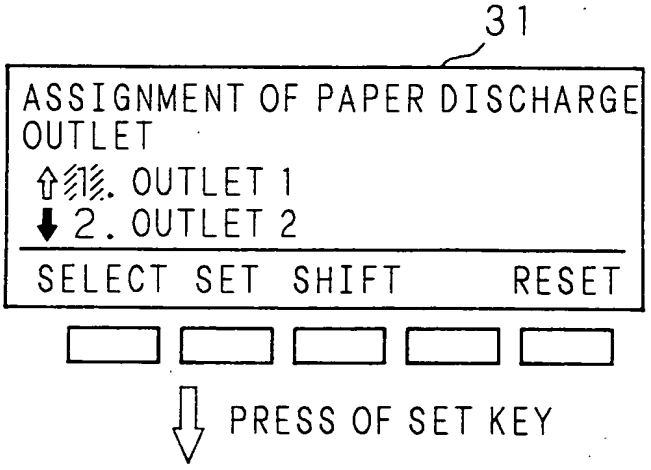
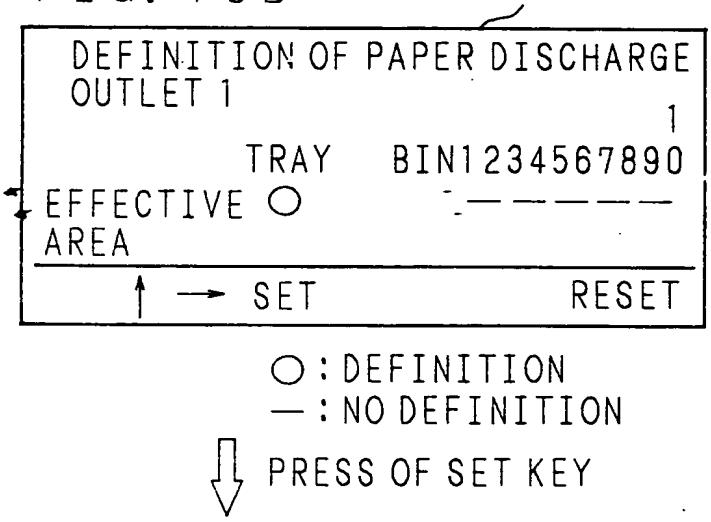

ASSIGNMENT OPERATION OF PAPER FEED INLET
S31
INPUT ASSIGNMENT INFORMATION OF PAPER FEED INLET BY DATA STREAM
EX. : 0x01 INLET 1
S32
RETRIEVE DEFINITION OF PAPER FEED INLET
EX. : INLET 1 :
UPPER MIDDLE LOWER LARGE CAPACITY
○ — — ○
S33
ASSIGN PAPER FEED INLET AND REQUEST PRINT
EX. : INLET 1 : (UPPER · LARGE CAPACITY)
END

FIG. 16A



3 : OUTLET 3
4 : OUTLET 4
⌇
10 : OUTLET 10
(KEY OPERATION)
SELECTION KEY
SELECTING PAPER DISCHARGE OUTLET TO BE DEFINED
SET KEY
CHANGING TO EACH PAPER DISCHARGE OUTLET DEFINITION SCREEN

FIG. 16B



(NOTE) NO STACKER 45 IN BINS CONNECTION NO BINS IN STACKER 45 CONNECTION

(KEY OPERATION)
↑ : UP KEY
CHANGING ○/—
→ : RIGHT KEY
MOVING CURSOR TO NEXT PAPER DISCHARGE OUTLET

FIG. 16C

CONTROL TABLE

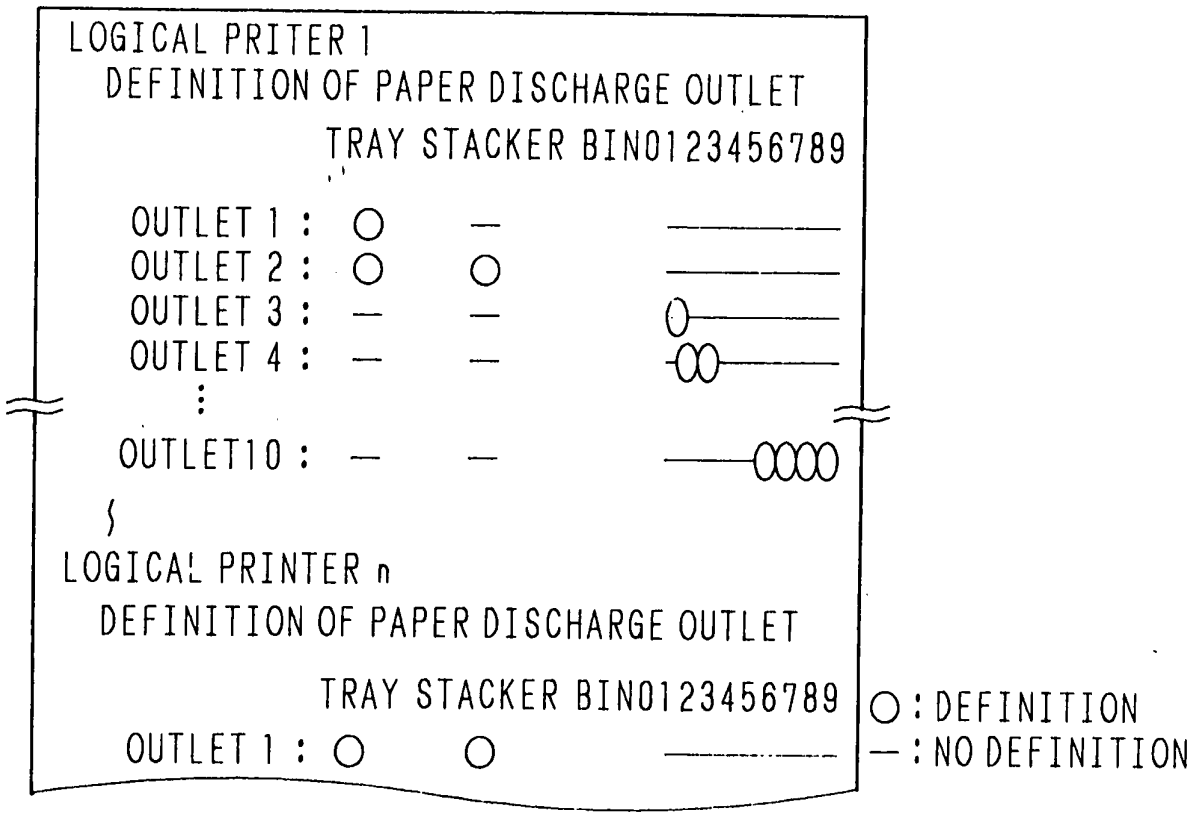


FIG. 17

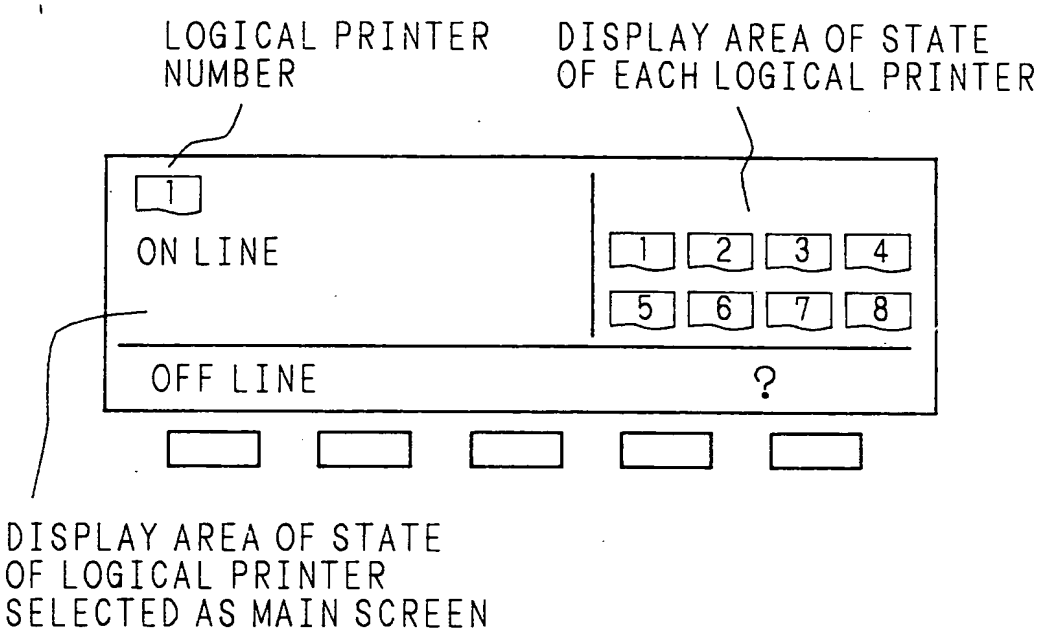

LOGICAL PRINTER NUMBER
DISPLAY AREA OF STATE OF EACH LOGICAL PRINTER
1
ON LINE
1 2 3 4
5 6 7 8
OFF LINE
?
DISPLAY AREA OF STATE OF LOGICAL PRINTER SELECTED AS MAIN SCREEN

FIG. 18

: LOGICAL PRINTER AT ON-LINE STATE (NUMBER IN MARK IS LOGICAL PRINTER NUMBER)

: LOGICAL PRINTER IN PRITING

: LOGICAL PRINTER OF HOST DEVICE POWER OFF / OFF-LINE

: LOGICAL PRINTER OF ERROR FOR PAPER FEED INLET / PAPER DISCHARGE OUTLET (EX. NO PAPER)

: LOGICAL PRINTER OF DATA ERROR

0040095 EP 0 440 095 A2

FIG. 19

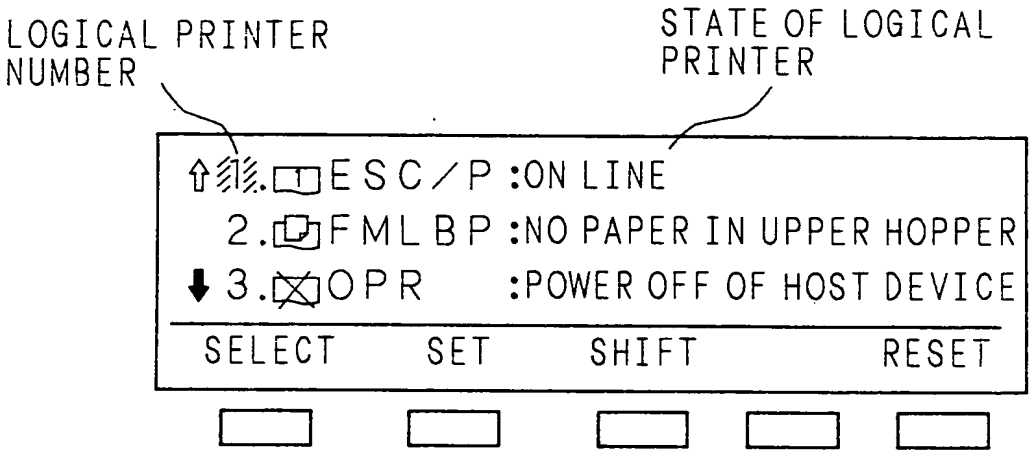

LOGICAL PRINTER NUMBER
STATE OF LOGICAL PRINTER
1. ESC/P :ON LINE
2. FMLBP :NO PAPER IN UPPER HOPPER
3. OPR :POWER OFF OF HOST DEVICE
SELECT
SET
SHIFT
RESET

FIG. 20

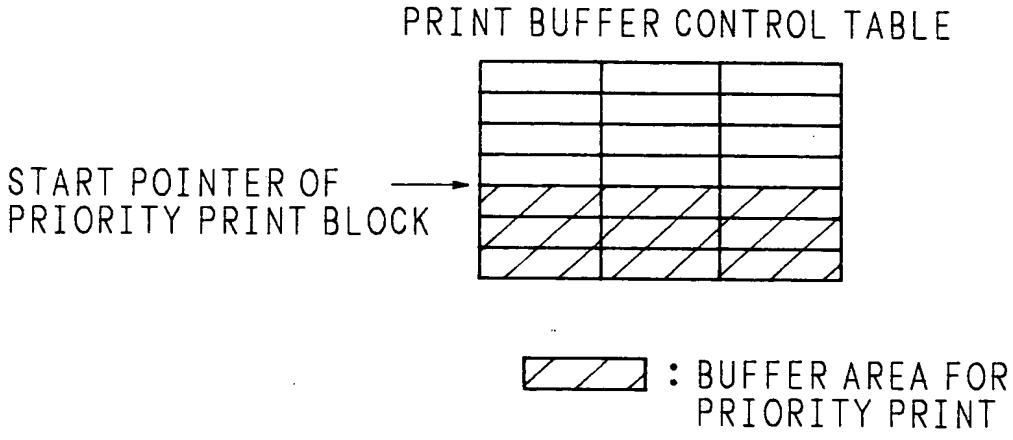

PRINT BUFFER CONTROL TABLE
START POINTER OF
PRIORITY PRINT BLOCK
: BUFFER AREA FOR
PRIORITY PRINT

FIG. 21

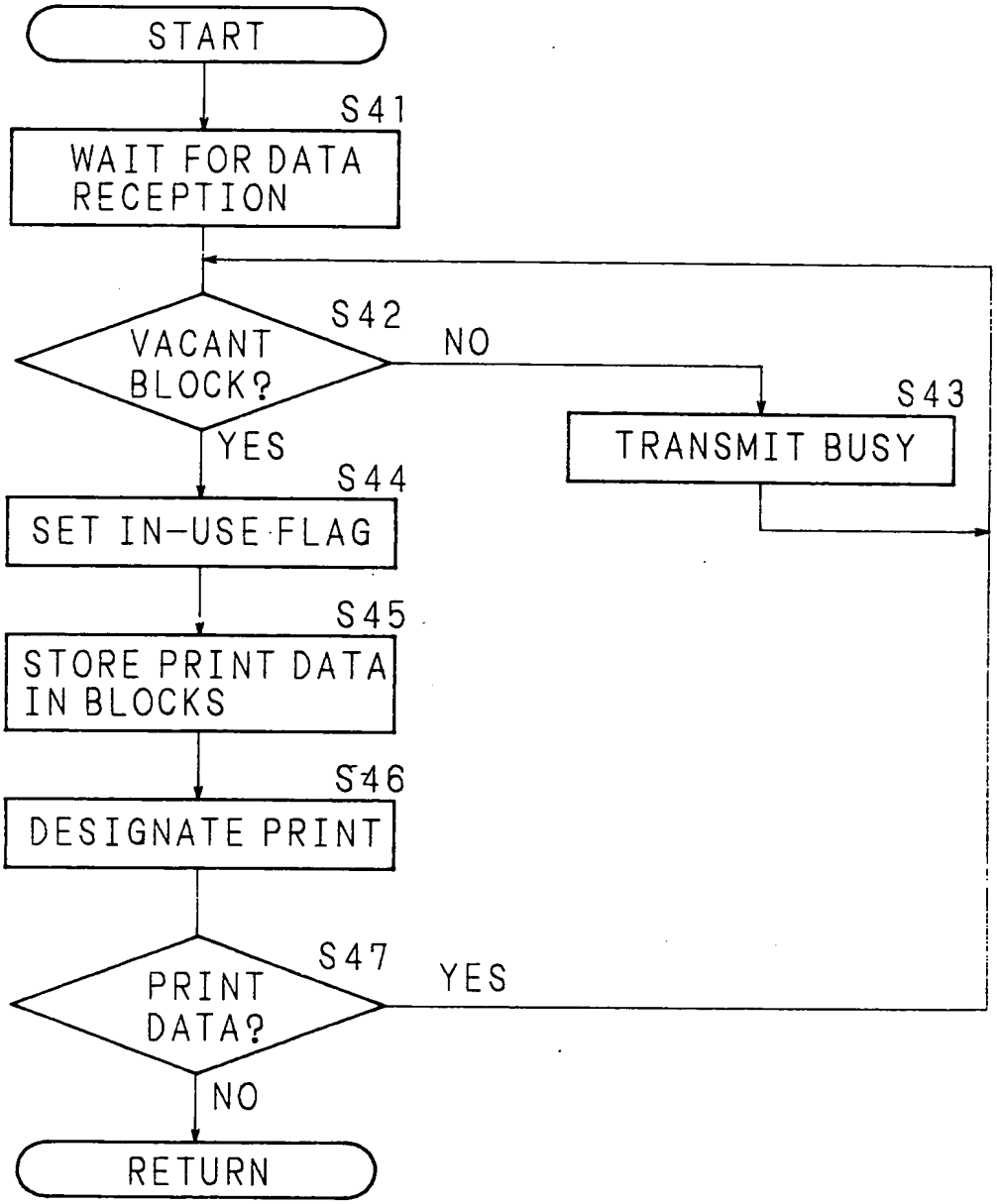

START
S41
WAIT FOR DATA RECEPTION
S42
VACANT BLOCK?
NO
S43
TRANSMIT BUSY
YES
S44
SET IN-USE FLAG
S45
STORE PRINT DATA IN BLOCKS
S46
DESIGNATE PRINT
S47
PRINT DATA?
YES
NO
RETURN

FIG. 22

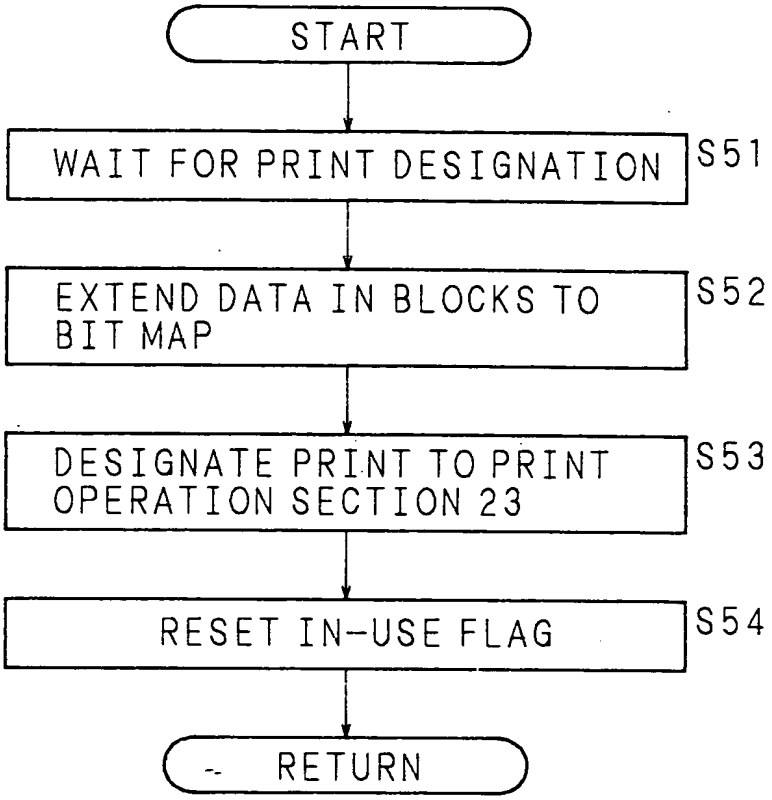


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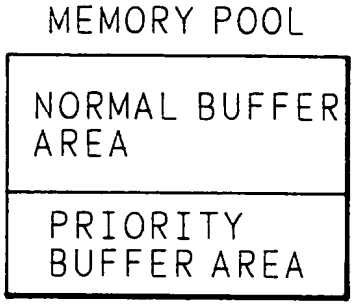
FIG. 23



0504054 0504054

FIG. 24

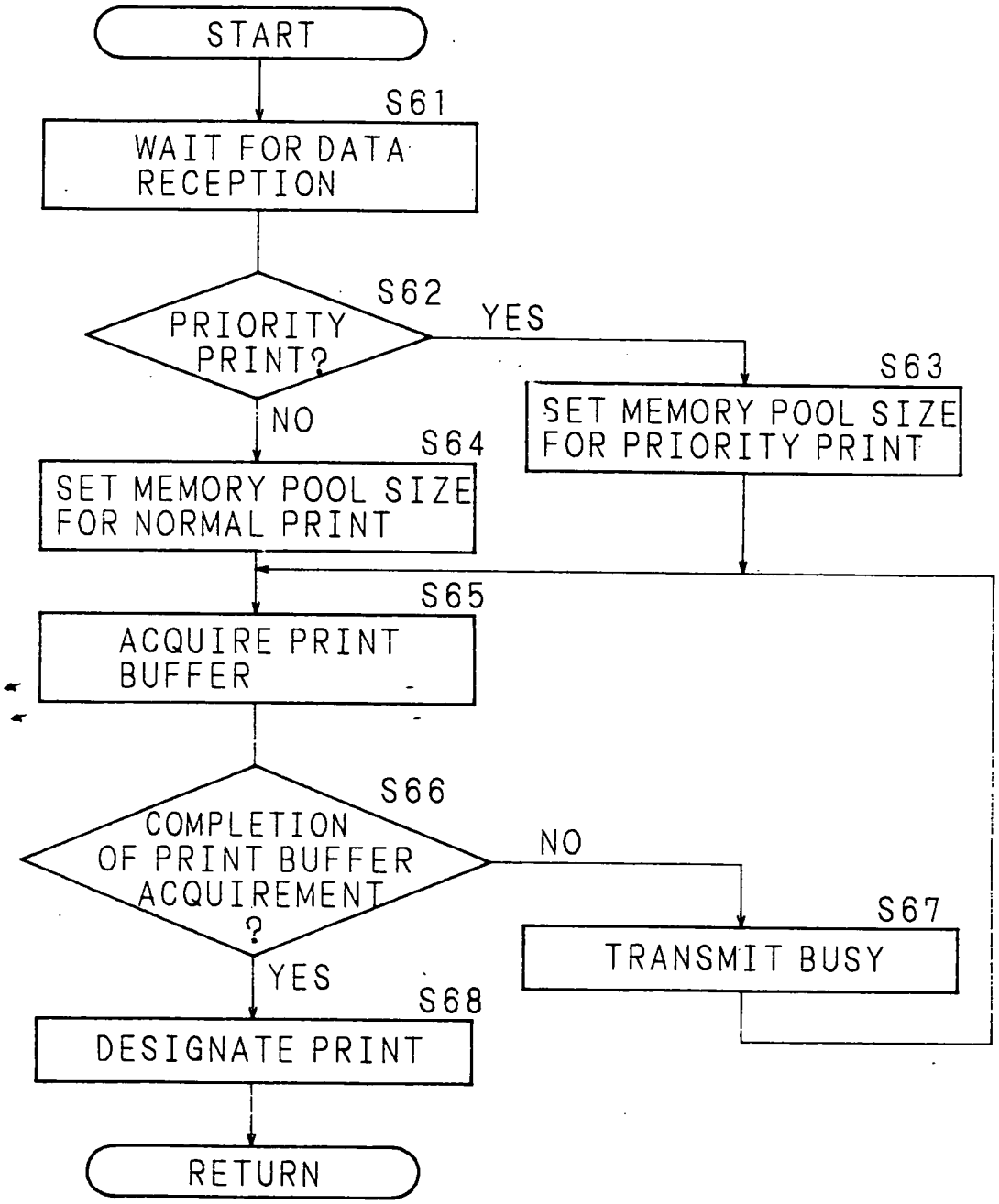

START
S61
WAIT FOR DATA RECEPTION
S62
PRIORITY PRINT?
YES
S63
SET MEMORY POOL SIZE FOR PRIORITY PRINT
NO
S64
SET MEMORY POOL SIZE FOR NORMAL PRINT
S65
ACQUIRE PRINT BUFFER
S66
COMPLETION OF PRINT BUFFER ACQUIREMENT ?
NO
S67
TRANSMIT BUSY
YES
S68
DESIGNATE PRINT
RETURN

FIG. 25

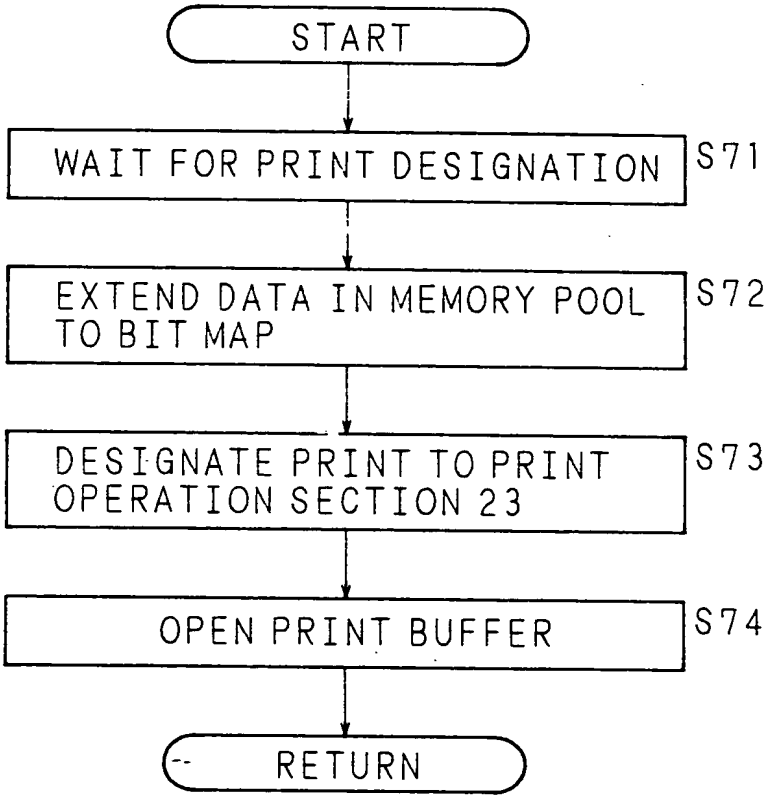

START
WAIT FOR PRINT DESIGNATION
S71
EXTEND DATA IN MEMORY POOL TO BIT MAP
S72
DESIGNATE PRINT TO PRINT OPERATION SECTION 23
S73
OPEN PRINT BUFFER
S74
RETURN

FIG. 26

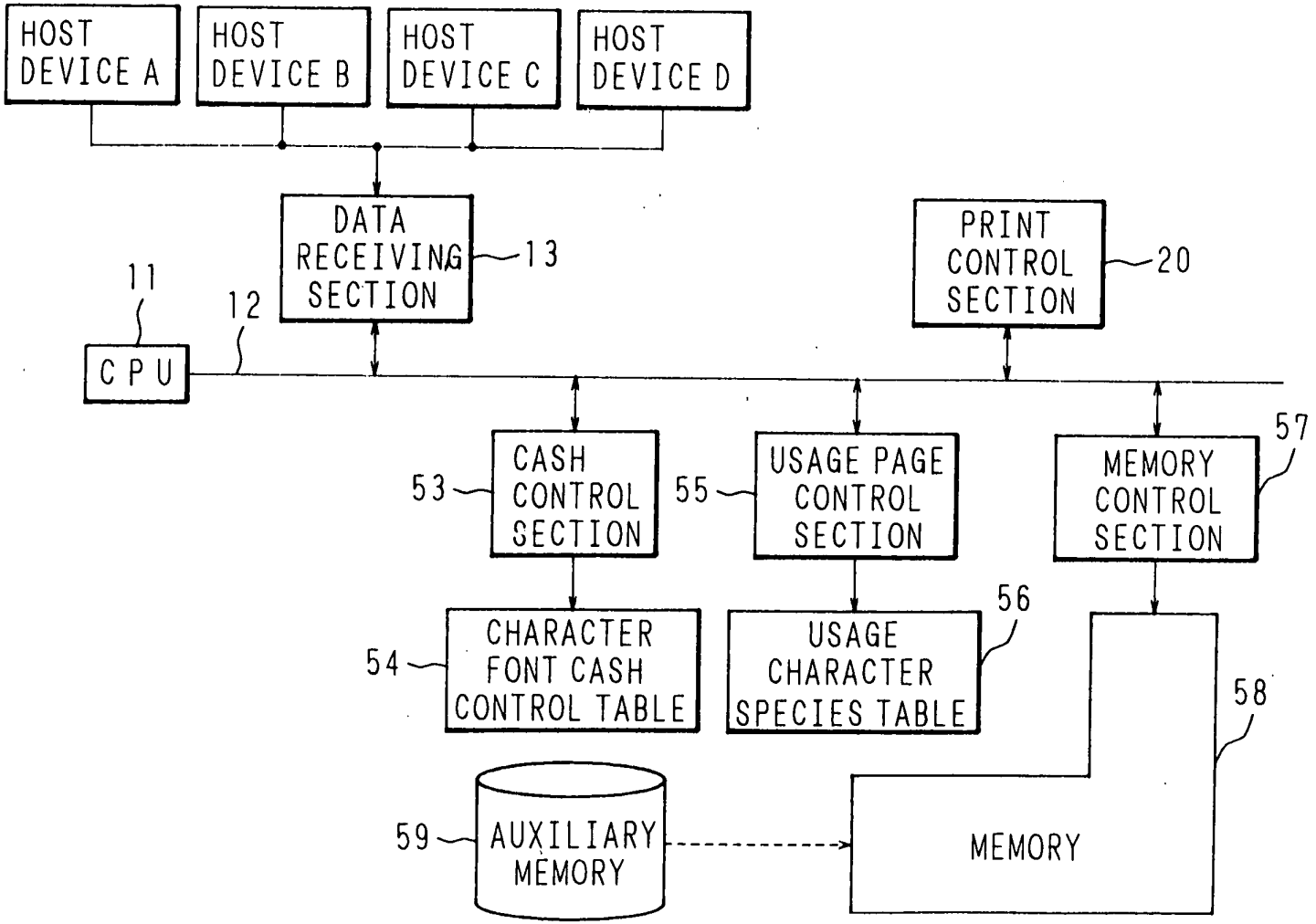

HOST DEVICE A
HOST DEVICE B
HOST DEVICE C
HOST DEVICE D
DATA RECEIVING SECTION
13
PRINT CONTROL SECTION
20
11
12
CPU
CASH CONTROL SECTION
53
USAGE PAGE CONTROL SECTION
55
MEMORY CONTROL SECTION
57
CHARACTER FONT CASH CONTROL TABLE
54
USAGE CHARACTER SPECIES TABLE
56
58
AUXILIARY MEMORY
59
MEMORY

FIG. 27

CHARACTER FONT CASH CONTROL TABLE

SPECIES 1	LOAD FLAG	USAGE PAGE COUNTER
SPECIES 2	LOAD FLAG	USAGE PAGE COUNTER
.	.	.
.	.	.
SPECIES N	.	.

FIG. 28

USAGE CHARACTER SPECIES TABLE

NUMBER OF USAGE CHARACTER SPECIES M
USAGE CHARACTER SPECIES 1
USAGE CHARACTER SPECIES 2
. . .
USAGE CHARACTER SPECIES M

0940054.0110